

The Planisphere

A planisphere is basically an analog computer which provides a display of the celestial sphere as seen from a given geographic latitude at any given time. It consists of two discs which rotate about a common pivot point. The lower disk contains a map of the celestial sphere with the pivot located at the celestial pole. The upper disk contains a mask which exposes only that portion of the sky map which will be visible at the given date and time. Different planispheres are used for different geographic latitude ranges; Las Cruces is at $+32^\circ$ latitude so a planisphere constructed for a 30° to 40° range should suffice for local users.

Operation is straight forward: The discs are rotated relative to one another until the time-of-day (usually marked on the outer disk) lines up with the time-of-year (the calendar date) indicated on the other disk. The “display” then shows the visible stars and constellations. The mask on the upper disc defines the horizon, and the cardinal directions (north, east, south, west) are indicated on its periphery. As with monthly star maps, the user can best align the displayed star map with the sky by holding the planisphere overhead and rotating it so it aligns with the compass directions, the north indicator toward the north, *etc.*

Note: The backside of the Chandler planisphere provides a separate display of the southern part of the sky visible at a given time.

A planisphere just displays the brighter fixed stars and their constellations. The location of the Sun on the celestial sphere for a given date can be obtained by setting the time to “noon” and noting where the meridian line crosses the ecliptic (usually shown as a dashed curve and labeled as such). Any reasonably bright “starlike” object which is seen near the ecliptic, but is not shown on the planisphere, is probably a planet. Note that the planisphere can also be used to show the stars that would be visible in the daytime were it not for the presence of the Sun in the sky.

Planispheres are available in a variety of sizes and materials. Some show only the brightest stars, others also show selected objects which are best viewed with binoculars. In any case, pick a model appropriate to your latitude.

A planisphere provides a simple way of demonstrating how the celestial sphere appears to rotate in the course of a sidereal day (23h 56m 04s) and how the constellations visible change with the seasons. It could also be used as a crude timepiece or calendar.